

Fear of Walking Outdoors: An Ecological Analysis of Violence and Disorder in Urban Neighborhoods



**Caterina Gouvis Roman
Aaron Chalfin**

**Justice Policy Center
The Urban Institute**

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Study Goal

- Integrate/expand research on fear of crime into public health domain
- Examine influence of indicators of social and physical disorder not usually available
- Investigate the degree to which individual-level demographic characteristics and neighborhood-level physical and social characteristics are associated with increased fear of crime.



Key Hypotheses

- Neighborhood levels of violence will be positively associated with fear/avoidance of walking
- The presence of gangs (social disorder) will be positively associated with fear/avoidance of walking
- Increased neighborhood collective efficacy will mediate the impact of violence and gangs on fear/avoidance of walking



Key Hypotheses (continued)

- Relationships will hold true controlling for individual-level factors, physical environment and social environment
- Men and women will be differentially affected by the safety of their environment
- Influence of neighborhood collective efficacy will vary by race of respondent

Methods

Design: Cross sectional analysis using hierarchical linear models

Data sources:

- In-person neighborhood survey (2005); Stratified random sample of urban residents within 55 Washington D.C. neighborhoods (N=901); Great variation in socio-demographics across neighborhoods
 - Response rate 67%
- 2000 Census data linked to individual level
- Planning and land use data
- Law enforcement data



Dependent Variable

- How often does worry about crime prevent you from walking somewhere in your neighborhood?
 - never/rarely
 - Sometimes
 - often



Independent Variables

- Individual-Level Demographic Variables:
 - age
 - gender
 - race
 - percent of lifetime living in same house
 - friendship/kinship ties
- Crime and disorder:
 - count of officially reported violent crime (average of 2004-05);
 - law enforcement intelligence data on location and number of gangs
- Physical environment:
 - percent of block group comprised of parkland
 - percent of parcels that are vacant



Independent Variables (continued)

- Neighborhood structural constraints:
 - Concentrated disadvantage (poverty, female headed households, unemployment, welfare)
 - residential stability (time in home, homeowner)
 - racial heterogeneity

- Collective efficacy: social cohesion and informal social control

Independent Variables (continued)

- Cross-level interactions
 - Gender*levels of violence
 - Race*neighborhood collective efficacy/cohesion

Statistical Models (continued)

- Hierarchical Linear Models
 - Account for natural clustering of residents within neighborhoods
 - Assess how neighborhood level constructs interact with personal characteristics
- Models estimated using Stata's GLLAMM procedure
- Ordered logit models --estimating the odds that a predictor increases fear by one category

Summary Statistics

Table 1. Summary Statistics for Individual-Level Variables

Individual-Level Variables	Mean	SD	Min	Max
Fear of Crime	1.54	0.73	1.00	3.00
Age (years)	44.85	14.29	19.00	93.00
Gender (female)	0.59	0.49	0.00	1.00
Black	0.68	0.47	0.00	1.00
Proportion of life in neighborhood	0.22	0.22	0.00	1.00
Kinship (standardized)	0.00	1.00	-2.26	2.53

Summary Statistics

Table 2. Summary Statistics for Block Group-Level Variables

Block Group-Level Variables	Mean	SD	Min	Max
Number of gangs in neighborhood	0.94	1.23	0	4
Number of violent crimes	20.2	16.6	2.5	70
Proportion of the neighborhood that is green/parkland	0.03	0.05	0	0.23
Proportion of parcels that are vacant	0.05	0.05	0	0.3
Concentrated disadvantage	0	1	-1.41	3.33
Residential stability	0	1	-2.35	2.03
Racial heterogeneity	0	1	-1.28	1.92
Collective efficacy	0	1	-2.4	2.4



Multivariate Results

- Intra-class correlation coefficient = 0.11
 - 89% of variation in fear of crime occurs at the individual level
 - 11% of variation in fear of crime occurs at the neighborhood level
- ICC rarely exceeds 0.2 in studies of individuals within neighborhoods
- Low ICC does not preclude the existence of significant predictors at the neighborhood level

Multivariate Results (continued)

Parameter	OR	95% CI
<i>Individual-Level Variables</i>		
Age	1.018***	1.007 - 1.030
Female	1.524**	1.085 - 2.140
Missing Gender	1.578**	1.014 - 2.457
Black	1.707***	1.178 - 2.474
Proportion of Life in Neighborhood	0.489***	0.231 - 1.035
Kinship/Friendship Ties	0.884 ^a	0.756 - 1.032

Multivariate Results (continued)

Table 1. Odds Ratios from Hierarchical Ordinal Logistic Regression Models

	Without Collective Efficacy	With Collective Efficacy
Individual-Level Variables		
Age	1.018***	1.018***
Female	1.512**	1.512**
Missing Gender	1.612**	1.614**
Black	1.186	1.177 ^a
Proportion of Life in Neighbrhd	0.532*	0.534*
Kinship/Friendship Ties	0.890 ^a	0.890
Crime Variables		
Gang Count	1.068	1.075
Violent Crime	1.011 ^a	1.011 ^a
Physical Environment		
% Green	0.969 ^a	0.970 ^a
% Vacant	0.998	0.998
Neighborhood Structural Constraints		
Concentrated Disadvantage	1.442**	1.382*
Residential Stability	1.008	1.009
Racial Heterogeneity	0.927	0.919
Collective Efficacy	---	0.953
Intercept Variance Component	0.108	0.109

a < 0.15; *p < .10; **p < .05; ***p < .01 (two-tailed tests).

Summary of Results

➤ Significant individual-level variables:

- Age: Increase of 10 yrs increases odds of moving up a level in fear by 20%
- Gender: Women have double the odds of being in higher category
- Time in Neighborhood: 10% increase in time in neighborhood leads to 7% decrease in odds of being in higher level of fear

Summary of Results (continued)

- Significant neighborhood-level variables
 - Number of violent crimes:
Addition of 10 violent crimes/year increases odds of moving up a level of fear by 20%
 - Concentrated disadvantage ($p < .15$)
1 SD increase in disadvantage increases the odds of moving up a level of fear by 44%

Multivariate Results (continued)

Table 2. Odds Ratios for Hierarchical Ordinal Logistic Regression Models of Self-Reported Avoidance of Walking Due to Fear by Individual Background and Neighborhood Characteristics

	<u>Interaction 1</u>	<u>Interaction 2</u>	<u>Full Model</u>
<i>Individual-Level Variables</i>			
Age	1.019***	1.020***	1.020***
Female	1.520**	2.509***	2.056***
Missing Gender	1.626**	1.787**	1.748**
Black	1.139	1.185	1.146
Proportion of Life in Neighbrhd	0.539 ^a	0.511*	0.516*
Kinship/Friendship Ties	0.890 ^a	0.886 ^a	0.887 ^a
<i>Crime Variables</i>			
Gang Count	1.080	1.074	1.078
Violent Crime	1.009	1.023***	1.021**
<i>Physical Environment</i>			
% Green	0.973	0.969 ^a	0.973
% Vacant	1.000	0.997	0.998
<i>Neighborhood Structural Constraints</i>			
Concentrated Disadvantage	1.330 ^a	1.390*	1.340 ^a
Residential Stability	0.961	1.008	0.961
Racial Heterogeneity	0.886	0.930	0.897
Collective Efficacy	0.747 ^a	0.944	0.743 ^a
<i>Interaction Terms</i>			
Black * Collective Efficacy	1.451**	---	1.441*
Female * Violent Crime	---	0.977***	0.978**
Intercept Variance Component	0.092	0.109	0.092

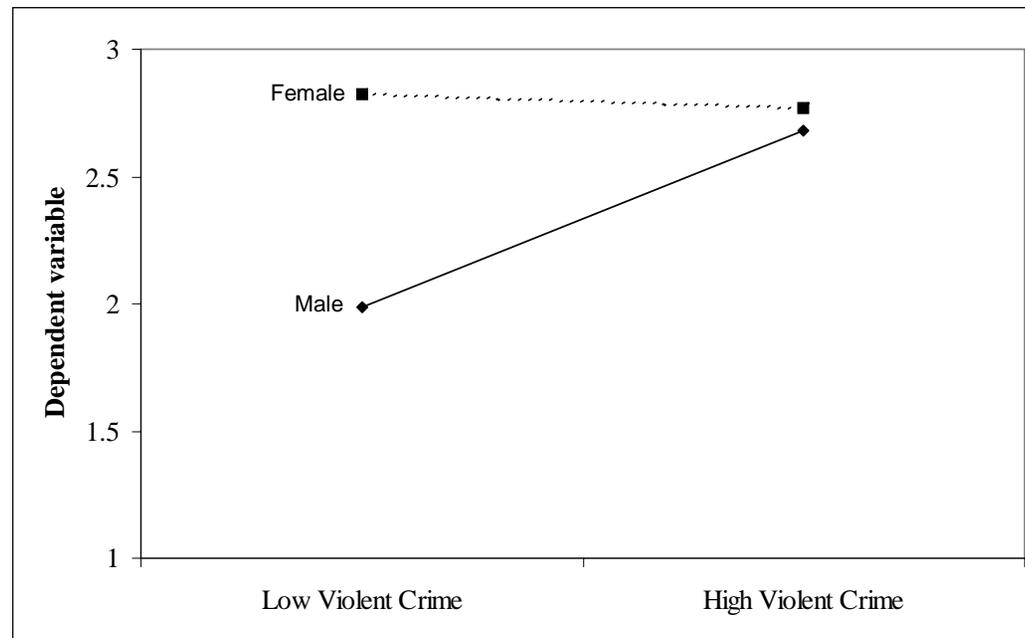
a < 0.15; *p < .10; **p < .05; ***p < .01 (two-tailed tests).

Summary of Results (continued)

➤ Cross-level interactions

➤ Gender*levels of violence

- The effect of levels of violence on fear/avoidance of walking is positive and significant for males but not for females

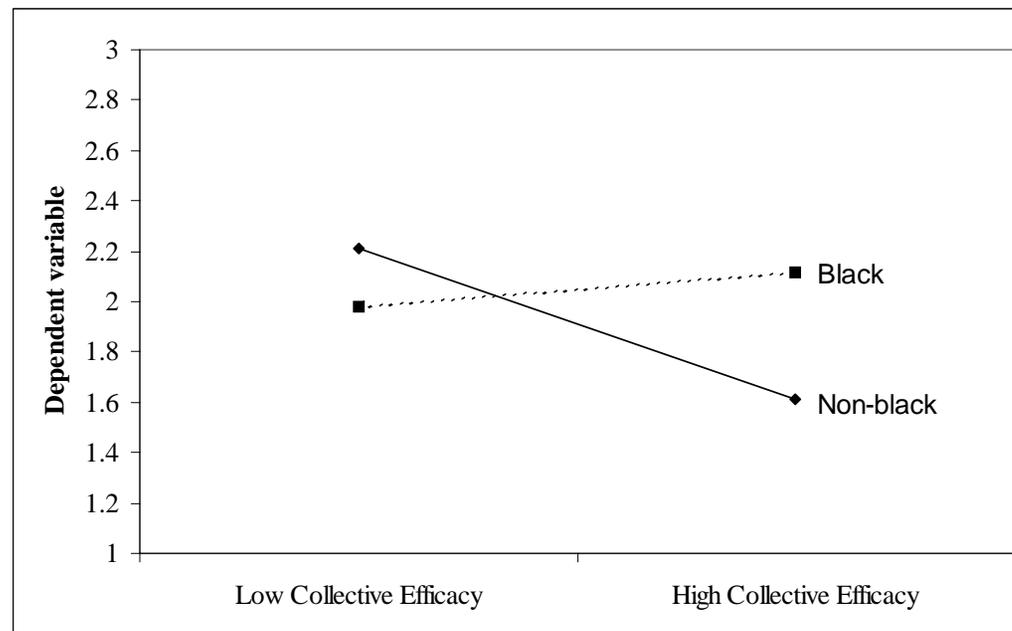


Summary of Results (continued)

➤ Cross-level interactions

➤ Race*neighborhood collective efficacy/cohesion

- Collective efficacy mediates the relationship between non-black residents' fear and levels of violence, but not for black residents





Limitations

- Cross sectional study
- Data on past victimization not available
- Generalizability
- High correlation between gangs, violent crime and disadvantage



Summary

- Avoidance of walking in neighborhood is maladaptive response to fear
- Women are fearful, regardless of levels of violence--high levels of violence are associated with avoidance of walking— for males.
- Collective efficacy can reduce maladaptive response, but varies by race
- Additional research to dissect components of collective efficacy and how/why it interacts with race



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